

In Search of Marketing Partners

Diana Tucker

Birthplace of Dixieland jazz and home of the Mardi Gras, New Orleans, Louisiana, is also a city where business thrives.

It was here in June of 1996 that Diana Tucker brought four new products: a patented device that steam-treats poultry to kill bacteria without cooking; a quick, easy way to detect *E. coli* 0157:H7 bacteria isolated from meat; corn fiber oil with serum cholesterol-lowering properties; and microwaveable syrup made from a shelf-stable spray-dried butter powder.

Tucker, a marketing specialist with the Agricultural Research Service, was looking for business partners to further develop these and other new products and technologies coming from research at ARS' Eastern Regional Research Center (ERRC) in Wyndmoor, Pennsylvania.

"This trade show is one of the best forums we have for finding research and development partners for our projects," Tucker says. "I'd say more than 500 people visited our booth."

Tucker's booth was one of 2,300 at the 1996 Institute of Food Technologists' International Food Expo that drew more than 20,000 attendees to New Orleans from June 22 to 26.

Touted as the world's largest industrial food product development exposition, that trade show proved a gold mine of opportunities for Tucker.

She works with Stephen H. Fearheller, Technology Transfer Coordinator at ERRC.

"Our job is to find potential partner companies that may be interested in manufacturing a product or developing a technology invented by one of our scientists," she says. "We have a pilot plant here at the ERRC and labs to run experiments, but it takes an outside company to actually make a product on a commercial scale."

Tucker's interest in science goes a long way back. In the early 1980's, when many students at Philadelphia's

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At the recent International Food Expo in New Orleans, Louisiana, Diana Tucker met industry representatives with a possible interest in manufacturing products or developing technologies from ARS. (K7370-1)

Jay Cooke Junior High School were spending summers at the swimming pool or just hanging out, Diana Tucker was getting ready for a career in science.

"In junior high and high school, I spent 5 years in a program that allowed me to attend summer classes at different local universities," Tucker explains. "One of those was the Philadelphia College of Pharmacy and Science, which led me to major in pre-pharmacy."

While a college student in 1990, Tucker was hired by the ERRC to work with David D. Douds, Jr., a soil microbiologist researching beneficial mycorrhizal fungi that help crops take in soil nutrients. Tucker ran assays to determine nutrient uptake by corn roots and tracked the symbiotic relationship between corn roots and various fungi. She worked with Douds as a student intern for 2 years.

"Midway through school, I switched my major to business, and I'm glad I did. Right after my graduation in 1992, ERRC was recruiting for a person to

work with transferring technology from the lab to the marketplace. And they were looking for someone with a business degree and a strong background in science," she says.

Tucker applied for and got the position. The business degree has helped in her dealings with representatives seeking new business ventures for their companies. In September of this year, she received an MBA, with a special emphasis in marketing, from La Salle University in Philadelphia.

Tucker's job is an interesting one. To promote technology transfer, she and Fearheller travel to several major trade fairs and expos each year, carrying brochures and an 8- by 10-foot display that shows examples of research conducted at the ERRC.

"We update the physical display regularly, adding new projects that may interest possible business partners," she says. "There are usually about 20 developments in our portfolio; kind of something for everybody."

She has also started a monthly newsletter that goes to about 50 businesses throughout the country. Written in simple language, this newsletter provides updated information on research that is being patented and is available for licensing.

When Tucker finds someone who is interested in more information about a particular project, she sets up a site visit with the ERRC scientist who is doing the research. A formal cooperative research and development agreement (CRADA) can result from these visits.

This is what happened with biodegradable pectin-starch films developed by ERRC's Marshall L. Fishman from pectin (a major component of fruits and vegetables), starch, and glycerol (from animal fat or corn).

Completely biodegradable, these films can be used by the food industry as packaging that will dissolve in cooking, like a film wrap for dried soup mixes, or to separate food on packaging trays. A patent has been granted for these films, which also have potential for use in flushable diapers and other hygienic products.

Tucker took these starch films to a technology transfer conference in 1993 and was approached by a representative of the Michigan Biotechnology Institute (MBI) of Lansing, Michigan. MBI had learned of the technology from Fishman at a scientific meeting in Italy. After a site visit to ERRC, MBI signed a CRADA with ARS to further develop and commercialize the films. A spinoff company, Bioplastics, Inc., has a federal small business innovation grant to commercialize the films.

"Sometimes it is the scientists who make the contact that nets a business partner," Tucker explains.

"We recently signed an agreement with a company to commercialize a new process to keep prepeeled potatoes from turning brown. The scientist who did the research also handled the initial contact."

ERRC's Gerald M. Sapers used vitamin C and citric acid, instead of sulfite, to keep prepeeled potatoes from turning brown for up to 2 weeks. Widely used by food processors and the food service industry, prepeeled potatoes brown rapidly if not treated with inhibitors.

Sulfite, the most effective anti-browning compound for potato products, leaves a residue in food that can trigger an allergic reaction in some consumers and has been banned for some food uses because of this. Processors prefer an alternative, but current substitutes don't meet industry requirements; they fail within 1 week.

"The ERRC process involves treating prepeeled potatoes with a heated solution containing vitamin C

and citric acid, then applying a conventional sulfite substitute, which maintains quality and shelf life for 2 weeks," Tucker says. "A representative of EPL Technologies, Inc., of Conshohocken, Pennsylvania, contacted Dr. Sapers about this work, came to see the work in progress, and decided to invest in the research."

The resulting CRADA also covers collaboration on developing a fresh-cut apple product, as well as one for other precut fruits and vegetables.

Sometimes Tucker's work brings scientists together who otherwise might not collaborate. "At a recent meeting, we talked with scientists from DuPont and realized that they were working on new uses for agricultural commodities, similar to what we are doing at ERRC," she says.

"Subsequently, their marketing consultant got in touch with us, and we held a symposium to coordinate our research efforts."

The result is that ARS and DuPont are considering the possibility of a collaboration from which consumers should ultimately benefit.

Only a couple of hectic months have passed since the New Orleans expo, but already Tucker is gearing up for the fourth annual Celebration of America's Bounty. To be held September 21 and 22 in McLean, Virginia, this is a show-and-tell of products, processes, and research developments coming from U.S. agriculture.

"We'll have our milkshake machine there," Tucker says. "This demonstrates research from the ERRC Dairy Products Research Unit. These reduced-sugar milkshakes have only 6 percent sugar—the same that is in chocolate milk—instead of the up to 11 percent found in commercial shakes."—By **Doris Stanley, ARS.** ♦

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A science background, along with degrees in business and marketing, help Diana Tucker promote products and technologies developed at ARS' Eastern Regional Research Center in Wyndmoor, Pennsylvania. (K7370-2)